Chapter 6 Conclusion

6.1. Conclusion and Suggestion

The results showed that using Authentic-UG based on Augmented Reality technology with the of ARCore SDK makes measuring an object more actual and has a high level of accuracy that can help students to learn geometry and students feel meaningful learning because students must be able to search geometry objects around them as a solution to authentic problems that are creatively applied. Student also feeling motivated, and feel healthy because students can freely and active to explore the environment in authentic learning.

The results of the analysis show that after students learn using Authentic-UG at a long time and repeatedly can make the overall score increase in learning achievement for the experimental group, especially in the dimensions making & measurement angle, line and shape (MM) and the dimension of line & angle estimation (E). It can be seen that overall the quality of measurements on each topic can directly influence student learning achievement especially on the dimension of line & angle estimation (E) because students want to learn the concept of lines and the concept of angle on each material. Students also have a tendency to make sure the authentic work they make has the accuracy of angle based on estimates during the measurement process because students must be able to search and then make for geometric objects as a solution to the problems that exist in the actual size questions.

This is a challenge for fourth-grade students who are still too young. The results of the analysis found that students more focused on the accuracy of angle and found it difficult to create accuracy of line on geometric objects in several ways because authentic geometry objects for line measurements were larger than their bodies. The quality of measurement in learning behavior as a whole has a direct effect on learning achievement, especially on the combine topic because on the combine topic there is a combination of two concepts, the concept of line and the concept of angle to be supplementary and complementary angles. In addition to ensuring that the work has the right visual image based on question, students also express authentic results answers using annotation like use note for explanations and draw to use mathematical symbol representations such as numbers and labels with multimedia whiteboard.

Furthermore, the results of authentic activities are also evaluated by the teacher and students using scaffolding assistance to make it easier for other students to conduct peer assessments. The evaluation was focused on the work of making geometry objects that relate

to the problems in the question along with the results of the level of accuracy of line and accuracy of angle. Authentic learning activities use measurements of quantity and quality to measuring the geometry of objects using teacher assessment and peer assessment to make students have the estimation ability and skills to make and measure by correctly estimating geometry objects after learning to use Authentic-UG applications. The result also indicate that the scaffolding can work well to predict the learning assessment.

6.2. Future Works

In further technical aspect on the Authentic-UG system can add new features using more advanced technology to facilitate students in learning geometry such as using machine learning to provide identification of objects around us. Furthermore, for learning material can be expanded such as comprehensive calculations on the shape area and also calculating the volume because Augmented Reality technology allows manipulating virtual objects in 3D and using ARCore can do measurement with high of accuracy.

In addition, there are differences in the level of automatic on quality of measurement with accuracy of the system as a machine that cannot be comprehensive as the quality of measurement results from the teacher or student, so that in the future can combine together using artificial intelligence to measure the quality provided by system as machine can be like the quality of judgments provided by teachers or student as humans.